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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/531,391  | 04/15/2005  | Masashi Watanabe     | 070759-0033         | 6874             |
| 20277 7590 02/26/2009<br>MCDERMOTT WILL & EMERY LLP<br>600 13TH STREET, N.W.<br>WASHINGTON, DC 20005-3096 |             |                      |                     |                  |
| EXAMINER  |             |                      |                     |                  |
| NIU, XINNING  |             |                      |                     |                  |
| ART UNIT  |             | PAPER NUMBER         |                     |                  |
| 2828  |             |                      |                     |                  |
| MAIL DATE   |             | DELIVERY MODE        |                     |                  |
| 02/26/2009  |             | PAPER                |                     |                  |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/531,391

Applicant(s)

WATANABE ET AL.

Examiner

XNNING NIU

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2008.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 4, 5 and 9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 5 and 9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-845)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

DETAILED ACTION

*Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1, 2, 4, 5, 9 rejected under 35 U.S.C. 103(a) as being unpatentable over De Poorter (U.S. Patent 5,578,863) in view of Onomura et al. (2002/0039374) and T. Tojyo et al., "High-Power AlGaInN Laser Diodes with High Kink level and Low Relative Intensity Noise," Jpn. J. Appl. Phys, Vol. 41, pps 1829-1833, 2002.

3. Regarding Claim 1, De Poorter discloses:

- Semiconductor laser device (10) comprising a semiconductor laser element (3) inside an airtight sealed package (20) (Figure 1).
- Atmospheric gas inside the package contains oxygen (Col 4, Lines 21-23).
- Atmospheric gas inside the package is a mixture of oxygen and nitrogen with an oxygen content of approximately 20% (Col 2, Lines

23-44). The examiner notes that approximately 20% can be interpreted as more than 20%.

De Poorter does not disclose:

- Semiconductor laser device having active region formed of a gallium nitride based crystal.
- Atmospheric gas inside the package is a mixture of oxygen and nitrogen with an oxygen content of more than 20%.
- Laser device with mean time to failure of 3000 hours or more at 70°C

However, Onomura et al. disclose:

- InGaN quantum well laser (claim 15).
- Output of semiconductor laser device is 30mW or more.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the laser apparatus as taught by De Poorter by mounting the InGaN laser device on the laser package in order to emit optical radiation at a lower wavelength.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to find an optimal range (greater than 20%) for the concentration of oxygen inside a package, since it is known that when the oxygen concentration is approximately 20% inside the package, dried air divested of other impurities can be used (De Poorter, Col 2, Lines 23-44), since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the

optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Tojoyo et al. disclose: AlGaInN laser device with mean time to failure of more than 15,000 hours under 30mW continuous wave operation at 60°C (page 1829, abstract). It would have been obvious to one having ordinary skill in the art at the time the invention was made use the laser device of Tojoyo et al. in the invention of De Poorter and operating it at 70°C since it was known in the art that a laser with a high mean time to failure is desired.

4. Regarding Claim 2, De Poorter discloses:

- Semiconductor laser element having a dielectric oxide film (4) formed on a laser emission surface (Figure 1; Col 3, Lines 59-62).

5. Regarding Claim 4, De Poorter as modified discloses:

- Semiconductor laser emitting light having a wavelength of 0.9  $\mu\text{m}$  or less (Onomura et al. ([0058])).

6. Regarding Claim 5, De Poorter as modified discloses:

- Semiconductor laser element (3) arranged in airtight sealed package and atmospheric gas inside the package is a mixture of oxygen and

nitrogen with an oxygen content of 20% or more (dry air) (Figure 1, Col 2, Lines 23-44, Col 3, Lines 47-67).

7. Regarding claim 9, please see the rejection for claim 5.

*Response to Arguments*

8. Applicant's arguments with respect to claims 1, 2, 4, 5, 9 have been considered but are moot in view of the new ground(s) of rejection.

*Conclusion*

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to XNNING NIU whose telephone number is (571)270-1437. The examiner can normally be reached on M-T, 7:30-5:00 EST, Alternate Fridays 7:30-4:00 ES.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Min Sun Harvey can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Xinning(Tom) Niu/  
Examiner, Art Unit 2828  
02/18/2009

/Minsun Harvey/

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Supervisory Patent Examiner, Art Unit 2828